

Operational Use

Of course, the final goal for all LOCAD technologies is operational use onboard NASA spacecraft, to allow crew members to make informed decisions with minimal assistance from ground science teams. Currently, the LOCAD-Portable Test System is a demonstration unit aboard the International Space Station, but has already been used by Planetary Protection personnel at the Jet Propulsion Laboratory and Charles River Laboratories to evaluate the sterility of spacecraft surfaces prior to launch. Another future operational role for the unit as an analyzer of sterile water for injection is also described below.



● Planetary Protection

- The PTS was used at the assembly floor at Kennedy Space Center (KSC) to assess the level of the bacterial molecule endotoxin on spacecraft surfaces
- The technique used by the PTS to evaluate endotoxin levels has been approved as an alternate method to standard microbial culture for determining the level of contamination on a spacecraft surface prior to launch (NASA Handbook 6022, in approval cycle)

● Future Use: Water for Injection (WFI) Analysis

- Water for injection into astronauts must be completely endotoxin-free to prevent an adverse reaction. Requirements are currently defined in endotoxin units (EU)/mL, which are the units used by the PTS, and are within the detection range of the instrument
- Discussions are underway as to the future ground and flight tests to be conducted with the PTS